

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF MARYLAND  
NORTHERN DIVISION  
CIVIL ACTION NO.: WMN-02-CV-2068

WILLIAM LOCKWOOD,  
Plaintiff,  
v.

PACIFIC CYCLE, LLC, AND TOYS "R"  
US-DELAWARE, INC.,  
Third-Party Plaintiffs,  
  
v.

SR SUNTOUR, INC., AND SR SUNTOUR,  
USA,  
Third-Party Defendants.

DEPOSITION OF:  
JAMES M. GREEN

On Monday, April, 14, 2003, commencing at 1:05 p.m., the deposition of JAMES M. GREEN was taken on behalf of the Defendant at the offices of Asheville Reporting Service, 66 N. Market Street, Asheville,, North Carolina, and was attended by Counsel as follows:

APPEARANCES:

MICHAEL P. SMITH, ESQ.  
Salsbury, Clements, Bekman,  
Marder & Adkins, LLC  
300 W. Pratt Street, Suite 450  
Baltimore, Maryland 21201  
on behalf of the Plaintiff,

EDWARD J. LOPATA, ESQ.  
Tydings & Rosenberg, LLP  
100 East Pratt Street  
Baltimore, Maryland 21202  
on behalf of the Defendants.

REPORTED BY: Rebecca A. Geldres, CVR  
ASHEVILLE REPORTING SERVICE



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4	<p>1 DIRECT EXAMINATION BY MR. LOPATA:</p> <p>2 Q Mr. Green, my name is Ed Lopata and I</p> <p>3 represent Suntour, Inc., or USA, also known as</p> <p>4 USUL Corporation, in a lawsuit filed by Mr.</p> <p>5 Lockwood versus Pacific Cycle, Toys "R" Us,</p> <p>6 and they've brought us in as a third-party</p> <p>7 defendant. And you've been designated as an</p> <p>8 expert and I've got your expert report. We're</p> <p>9 here to take your deposition today. Just a</p> <p>10 little ground rules, any question I ask, if</p> <p>11 you don't understand it, stop me. I'll</p> <p>12 rephrase the question. And then, as you know,</p> <p>13 if you answer the question, I'm going to</p> <p>14 assume that you understood the question. Any</p> <p>15 questions you can answer yes or no, please say</p> <p>16 yes or no, rather than nod or grown. Okay?</p> <p>17 A Yes.</p> <p>18 Q And you realize that you've just taken the</p> <p>19 same oath you take before a judge and a jury,</p> <p>20 if we were in trial?</p> <p>21 A Yes.</p> <p>22 Q State your name, sir?</p> <p>23 A James Marley Green.</p> <p>24 Q Mr. Green, I've been advised by counsel that</p> <p>25 you expect to get paid before we start the</p>	5	<p>1 deposition, so I've got a check for you for</p> <p>2 \$900.</p> <p>3 A Yes.</p> <p>4 Q I also understand that you charge \$200 an hour</p> <p>5 for deposition?</p> <p>6 A Two-twenty-five.</p> <p>7 Q If, in fact, we don't spend all the money, I</p> <p>8 assume that you'll refund me some of the</p> <p>9 money?</p> <p>10 A Yes.</p> <p>11 Q Also, I want to mark the deposition notice .</p> <p>12 BY THE COURT REPORTER:</p> <p>13 Do you want that to be one?</p> <p>14 BY MR. LOPATA:</p> <p>15 Yes, mark it as one. And mark two as his</p> <p>16 report. And three is basically his history of</p> <p>17 all the cases he testified to.</p> <p>18 (DEFENDANT'S DEPOSITION EXHIBIT NOS. 1 THROUGH 3</p> <p>19 MARKED)</p> <p>20 DIRECT EXAMINATION RESUMED BY MR. LOPATA:</p> <p>21 Q Let me show you what's been marked as</p> <p>22 Deposition Exhibit No. 1, which is the notice</p> <p>23 of your deposition. I take it you've seen</p> <p>24 that before? Mr. Smith has provided it to you</p> <p>25 or discussed it with you?</p>

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10

1 the past on other issues. I don't have access  
 2 to that and I don't keep a file of that, for  
 3 No. 20. That's all that's on there.  
 4 DIRECT EXAMINATION RESUMED BY MR. LOPATA:  
 5 Q With regard to Exhibit 5, which is your  
 6 billing statement ---  
 7 A Yes.  
 8 Q --- how do your time?  
 9 A As in what -- we use time slips.  
 10 Q And then you use the time slips to type up the  
 11 bill that I'm looking at?  
 12 A Yes. That's from the time slips.  
 13 Q At the time you received the bicycle from the  
 14 client -- you have a note on 06-21 you  
 15 received the bicycle from the client. What  
 16 condition was the bicycle in? Was it all  
 17 taken apart or ---  
 18 A Well, it came shipped in a bike box in the  
 19 condition that's noted in the photos. No --  
 20 nothing has been -- was done to it. And we  
 21 downloaded all the photographs that were taken  
 22 at the time that I looked at the bicycle, and  
 23 you can see the condition it was in. And that  
 24 was the condition when it was sent back. Are  
 25 you going to mark those or -- I might add that

11

1 I separated out for clarity in handwritten --  
 2 figures that are in the engineering report,  
 3 just because they're easier to see.  
 4 BY MR. LOPATA:  
 5 We'll mark these. These seven photographs are  
 6 Exhibit No. 6.  
 7 (DEFENDANT'S DEPOSITION EXHIBIT NO. 6 MARKED)  
 8 DIRECT EXAMINATION RESUMED BY MR. LOPATA:  
 9 Q With regard to Exhibit No. 5, your bill, how  
 10 many hours did it take to formulate your  
 11 opinions that are set forth in the August 19,  
 12 2002, report?  
 13 A Okay. Eighteen point five hours was spent on  
 14 the project, prior to writing the engineering  
 15 report. And your question was how many hours  
 16 of those 18.5 did it take to formulate the  
 17 opinion, and I don't know if I can answer  
 18 that. Certainly a certain number of those  
 19 hours were used formulating my opinion.  
 20 Q In looking at Deposition Exhibit No. 2, which  
 21 is your August 19, 2002, report, it appears to  
 22 me that your opinion in this case really goes  
 23 to the fact that you believe, from a design  
 24 standpoint, that there should have been  
 25 welding in place to actually connect the steer

12

1 tube to the fork crown?  
 2 A That or some other kind of redundancy. There  
 3 are other ways of keeping the two of these  
 4 together. You could have used a form of  
 5 glue/epoxy, which you see often, or you could  
 6 have braced them together. But certainly some  
 7 form of redundancy needed to be there.  
 8 Q And that's basically the sole whole opinion  
 9 set forth in your report; correct?  
 10 BY MR. SMITH:  
 11 Objection.  
 12 BY THE DEPONENT:  
 13 Well, it's not the sole opinion.  
 14 DIRECT EXAMINATION RESUMED BY MR. LOPATA:  
 15 Q I mean, I read it ---  
 16 A It's the primary opinion certainly. It's the  
 17 -- I would agree with you it's the primary  
 18 opinion.  
 19 Q With regard to the SR Duo Track 7006, have you  
 20 ever been involved in any other case dealing  
 21 with that component part?  
 22 A Well, I mean, that I can't answer because I  
 23 don't separate out the component part, per se,  
 24 in a lot of cases I get. I mean, I may have  
 25 had that in the office or the laboratory and

13

1 not known it was there.  
 2 Q Well, my question is whether that was an  
 3 issue, as opposed to ---  
 4 A Okay, whether it was an issue. Let me -- let  
 5 me answer your question by saying this is the  
 6 first mechanical bonded front fork that I've  
 7 seen separate.  
 8 Q Have you ever read about any such situations?  
 9 A No.  
 10 Q With regard to the separation in this case and  
 11 your opinions, do you have any idea when the  
 12 bond was disconnected?  
 13 A You're referring to the mechanical bond?  
 14 Q Yes.  
 15 A I don't think anybody can tell you  
 16 specifically -- can give a specific time line  
 17 on that. It could have happened at the  
 18 factory. It could have happened anytime up to  
 19 and including the point that it released.  
 20 There's no way you can look at the signature  
 21 on the two parts and get a time line on it.  
 22 Q So it didn't necessarily disconnect at the  
 23 time of the accident?  
 24 A Let's make sure we're talking about the same  
 25 thing. When you say disconnect, I'm -- I'm

<p style="text-align: right;">14</p> <p>1 assuming that the bond -- the mechanical bond</p> <p>2 has lost its integrity.</p> <p>3 Q Correct.</p> <p>4 A It could still be in place. In other words,</p> <p>5 the steer tube could still be all the way down</p> <p>6 into the fork, but it no longer has integrity.</p> <p>7 So you could be in that situation for an</p> <p>8 extended period of time, and there's no way of</p> <p>9 telling how long that would be.</p> <p>10 Q With regard to the strength of the bond, of</p> <p>11 the mechanical bond, do you know what the</p> <p>12 strength was of that mechanical bond?</p> <p>13 A Do you mean to say in your question how much</p> <p>14 force would it take to release the -- the</p> <p>15 front fork from the steer tube?</p> <p>16 Q Yes.</p> <p>17 A I know what it should be. I don't know what</p> <p>18 this particular one was because it's after the</p> <p>19 fact. There's no way of testing it. But from</p> <p>20 my previous testing I can tell you that it</p> <p>21 would take at least two or three thousand</p> <p>22 pounds to get release, if the bond was proper.</p> <p>23 That is to say, if it had an epoxy or welding,</p> <p>24 or something. You would get failure of the</p> <p>25 front fork before you get release.</p>	<p style="text-align: right;">15</p> <p>1 Q This bicycle was apparently sold in May of</p> <p>2 1997; is that correct?</p> <p>3 A Correct.</p> <p>4 Q Were there any standards in the industry</p> <p>5 regarding what the strength of that bond ---</p> <p>6 A There are no -- there are no published</p> <p>7 standards in the industry on the strength of</p> <p>8 the bond at that time, or now, for that</p> <p>9 matter. What you have is the CPSC standards</p> <p>10 and the ongoing work through the ASTM fork</p> <p>11 committee.</p> <p>12 Q As far as the CPSC standards, talking about</p> <p>13 the Consumer Product Safety Commission, what</p> <p>14 standards were you referring to? I've got</p> <p>15 Deposition Exhibit No. 4, which I understand</p> <p>16 are the standards.</p> <p>17 A Go to four and then go to the drop test. Bear</p> <p>18 with me while I find it, please. Page --</p> <p>19 let's go to the reference number. It's</p> <p>20 Reference 1512.13(1), fork test procedure.</p> <p>21 Excuse me, let me see if counsel needs -- do</p> <p>22 we all have copies of the regulations?</p> <p>23 Q We have our copy. That's all right.</p> <p>24 A I'm referring to Exhibit 4. It says, to</p> <p>25 summarize it, there's a load applied to the</p>
<p style="text-align: right;">16</p> <p>1 axle attachment in a direction perpendicular</p> <p>2 to the center line of the stem and against the</p> <p>3 direction of the rake, which is a deflection</p> <p>4 and loading test, not a bond or movement test.</p> <p>5 So it's as close as you're going to get, to --</p> <p>6 to answer your question.</p> <p>7 Q In your opinion, is that applicable to this</p> <p>8 situation here?</p> <p>9 A Well, no. That's not the situation here.</p> <p>10 Your question to me was what written standards</p> <p>11 are out there, and I attempted to answer it by</p> <p>12 saying this is the best that's there, and it's</p> <p>13 not in any way, shape or form supposed to be a</p> <p>14 steer tube from the fork removal test, because</p> <p>15 it's not. And there's also, of course, the</p> <p>16 second part of that, which is the loading of</p> <p>17 890 newtons. That's 200 pounds force in a</p> <p>18 direction against the direction of the rake,</p> <p>19 which is toward the rear of the bike</p> <p>20 basically.</p> <p>21 Q What is that test?</p> <p>22 A That really is a fork deflection test.</p> <p>23 Q But that wouldn't be applicable in this</p> <p>24 situation either?</p> <p>25 A No. No. But that goes back to the original</p>	<p style="text-align: right;">17</p> <p>1 question.</p> <p>2 Q So as far as any industry standards or rules</p> <p>3 or regulations, statutes, etcetera, are there</p> <p>4 any as to what the strength of the mechanical</p> <p>5 bond should have been ---</p> <p>6 A No.</p> <p>7 Q --- in this bicycle in question?</p> <p>8 A No, other than what I read. That's the</p> <p>9 closest you're going to get to it in the CPSC</p> <p>10 regulations and the rough draft ASTM</p> <p>11 standards, for want of a better word, for the</p> <p>12 Fork Committee, which your expert Dave</p> <p>13 Mitchell is on, or I guess specific cycles.</p> <p>14 Expert Dave Mitchell and I are both on that</p> <p>15 committee. And there was a rough draft.</p> <p>16 They're not in -- they're not promulgated into</p> <p>17 final draft yet.</p> <p>18 Q And so they're not applicable standards, as</p> <p>19 far as this case is concerned?</p> <p>20 A Well, they're applicable in that the industry</p> <p>21 knows that they're there because the industry</p> <p>22 sits on a committee. Representatives from the</p> <p>23 industry sit on the committee. I believe your</p> <p>24 question was industry standards.</p> <p>25 Q Right. But those standards didn't govern the</p>

5 (Pages 14 to 17)

<p style="text-align: right;">18</p> <p>1 manufacture of SR Duo Track 7006 in 1995 or</p> <p>2 1996, when they were manufactured?</p> <p>3 A Not at that time when this was manufactured.</p> <p>4 The only written -- well, there are two</p> <p>5 written standards. One is the CPSC standards</p> <p>6 and the other is the ISO standards.</p> <p>7 International Safety Organization standards</p> <p>8 are fork deflection standards also. They're</p> <p>9 not mechanical bond or front fork standards.</p> <p>10 Q Are there any standards in the industry or</p> <p>11 statutes, regulations, whatever, concerning</p> <p>12 how the fit occurs? Can it be thermal bond?</p> <p>13 Can it be like a mechanical press-fit bond?</p> <p>14 Does it have to be welded? Does it have to</p> <p>15 have epoxy or something in there?</p> <p>16 A No. There's no standard -- there's no written</p> <p>17 standards in the industry on that.</p> <p>18 Q Are there any ---</p> <p>19 A In 1995 or today, for that matter.</p> <p>20 Q Are there any statutes, rules or regulations,</p> <p>21 anything like this?</p> <p>22 A No.</p> <p>23 Q In your report, you indicate that this Duo</p> <p>24 Track 7006 was defective because it didn't</p> <p>25 have a weld to connect the steering tube into</p>	<p style="text-align: right;">19</p> <p>1 the fork crown?</p> <p>2 A Yes.</p> <p>3 Q And you said that was a manufacturing defect?</p> <p>4 A Correct.</p> <p>5 Q What facts are you relying on to support your</p> <p>6 conclusion that this should have had a weld?</p> <p>7 A What facts am I relying on?</p> <p>8 Q Yes.</p> <p>9 A Well, I'm not relying on facts as much as I am</p> <p>10 engineering standards, in that when you design</p> <p>11 anything, whether it's a front fork and a</p> <p>12 steer tube or a bridge, you should have -- you</p> <p>13 need to have redundancy built into the system</p> <p>14 so that you don't have failure. You can't</p> <p>15 rely on one -- one system or one design. You</p> <p>16 need to have -- you need to have redundancy</p> <p>17 built into the design to protect the public,</p> <p>18 regardless of what you're designing.</p> <p>19 Q So it being your opinion in your letter here,</p> <p>20 when you indicate that there should have been</p> <p>21 a weld in place and you didn't see any, are</p> <p>22 you aware of any bicycle standards that would</p> <p>23 require a mechanical fit to be welded?</p> <p>24 A Oh, there are none, as I said earlier. I'm</p> <p>25 speaking as a -- as an engineer basically</p>
<p style="text-align: right;">20</p> <p>1 agreeing, I think, with what Dave Mitchell's</p> <p>2 saying, the other engineer that's involved in</p> <p>3 this matter, that there should have been --</p> <p>4 the fork shouldn't fail, but that -- that is</p> <p>5 not what you're asking me. What you're asking</p> <p>6 me is are there any standards there.</p> <p>7 Q Correct.</p> <p>8 A And to answer your question, I'm saying that</p> <p>9 there are no standards there, but any</p> <p>10 professional engineer who does any design,</p> <p>11 whether it's this design or any other design,</p> <p>12 would have redundancy built into the system.</p> <p>13 And in that respect, that standard is being</p> <p>14 violated, which is a design standard that any</p> <p>15 design engineer can give you; not just me, but</p> <p>16 any design engineer.</p> <p>17 Q So the simple fact that this Duo Track 7006</p> <p>18 was designed without taking into consideration</p> <p>19 a weld, you're saying that fact alone makes it</p> <p>20 a design defect?</p> <p>21 A Well, I'm saying a weld or equivalent. You</p> <p>22 could use epoxy. You know, that is done in</p> <p>23 the industry. You could use -- you could</p> <p>24 braze it. Welding is, by far, better when</p> <p>25 you're putting aluminum and -- and metal</p>	<p style="text-align: right;">21</p> <p>1 together like this -- aluminum and steel, I</p> <p>2 should say, together like this. And when it's</p> <p>3 going to be subjected to the type of stresses</p> <p>4 we're looking at here, welding is the best.</p> <p>5 But you could still get by -- by getting by I</p> <p>6 mean prevent failure, premature failure -- by</p> <p>7 using some type of epoxy or gluing method, or</p> <p>8 by brazing it. Welding is certainly easier</p> <p>9 and certainly preferred. If you look at all</p> <p>10 the forks in the industry, that's what you'll</p> <p>11 see is you'll see a weld there. And -- but</p> <p>12 any one of those three methods.</p> <p>13 Q Going back on your knowledge, as far as</p> <p>14 bicycles are concerning ---</p> <p>15 A Right.</p> <p>16 Q --- are you aware of any other bicycle</p> <p>17 manufacturer in 1995, 1996 or 1997 who</p> <p>18 manufactured a bike with a mechanical press</p> <p>19 fit, without an epoxy, without any welding,</p> <p>20 anything else that would provide a redundancy?</p> <p>21 A The word you used was "without"? Is that ---</p> <p>22 Q Exactly.</p> <p>23 A I'm not aware of any -- I'm not aware of any</p> <p>24 that do it without some type of redundancy.</p> <p>25 This is the first time I have seen this</p>



\* \* \*

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1 as a result, if you get temperature variation  
2 at all -- for example, if you go into a  
3 factory that's, say, 60 degrees and put --  
4 degrees F, and you put these two entities  
5 together mechanically. And then you take and  
6 go out into 100 degree weather, your aluminum  
7 is going to expand at a greater capacity than  
8 your steel, and you're -- you're going to have  
9 a loosened system. Your fork's going to tend  
10 to want to come off of the -- of the steer  
11 tube.

12 Q Just because of change in temperature?

13 A Well, because of the expansion of the  
14 different metal. The two different metals  
15 expand a greater rate. That's why you need a  
16 sense of redundancy. I mean, excuse me,  
17 you're not -- you need redundancy, not a sense  
18 of redundancy.

19 Q So it wouldn't make any difference how tight  
20 the fit is or how strong the fit is, that  
21 sooner or later it's going to become  
22 separated?

23 A No, I didn't say that. I said sooner or later  
24 you're going to be at risk. Not every one of  
25 these eight million forks is going to fail.

40

1 failure occurred here. It's just a bad  
2 design.

3 Q It's your opinion, again, it's more likely  
4 than not that because of the design of the SR  
5 Duo Track 7006, it's more likely than not that  
6 there would be a separation on all these  
7 bicycles?

8 A No, that's not what I'm saying. I said more  
9 likely than not that all eight million of  
10 these forks is at risk of failure. Will every  
11 fork fail? No. But they're all at risk of  
12 failure, and if you get conditions -- the  
13 right kind of conditions, you will get  
14 failure.

15 Q When you say they're at risk, you're saying  
16 that there's a possibility that there will be  
17 a failure, there will be a separation?

18 A I'm saying that every -- if every one of these  
19 eight million forks has a mechanical bond like  
20 we see here in this fork and nothing else has  
21 been done, I'm saying that every one of those  
22 eight million forks carries with it a very  
23 high risk of failure, under the right  
24 conditions. Will every eight -- one of the  
25 eight million forks fail? Of course not. But

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1 But your probability is pretty high that  
2 you're going to get failures with this design  
3 without a sense of redundancy built in. And I  
4 don't care how strong the bond is under this  
5 design configuration where you've got the  
6 striated edges pushing into the aluminum,  
7 causing grooves, and that is what's going to  
8 hold your system in. Sooner or later you're  
9 going to get failure in those eight million  
10 forks. Mr. Tanaka may not be aware of  
11 failure, but you're going to get them because  
12 of this design. You don't have any redundancy  
13 built in. It's a bad design.

14 Q Even though you recognize this, it's your  
15 opinion that this is a bad design, there  
16 aren't any rules or regulations saying you  
17 can't have two dissimilar metals mechanically  
18 fit?

19 A There are no rules or regulations in the  
20 standards for bicycles. That is true. But  
21 any engineer, any professional engineer is  
22 going to tell you this is a bad design and  
23 more probably than not, it's the reason that  
24 this -- well, it's the reason -- it's not more  
25 probably than not. It's the reason this

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1 if you get the conditions right, you'll get  
2 failure because you don't have a sense of  
3 redundancy built in. You've got two different  
4 metals being used in the mechanical bonding  
5 process and you're going to get very good  
6 potential for failure. Not every one of these  
7 forks is going to fail, but you're going to  
8 get failure.

9 Q Can you quantify the risk when you say a very  
10 high risk of failure?

11 A If you get a condition where you can get  
12 enough expansion of that outer part of the  
13 bond, which is the part that is met by the  
14 aluminum fork, you get enough expansion of  
15 that so that the two entities are sliding  
16 around, that is, the fork and the fork -- and  
17 the steer tube are sliding around and are  
18 going to become loosened, then all it takes is  
19 for the rider to raise that -- raise that  
20 front fork up and the fork crown can come off  
21 of the steer tube. Does every rider that  
22 rides a bike do that? Of course not. This  
23 probably very rarely happens. Will every  
24 rider that raises the front fork up have the  
25 front wheel fall off? Is that what Green is

<p style="text-align: right;">42</p> <p>1 saying? Of course I'm not saying that. What</p> <p>2 I'm saying is, if you get the conditions such</p> <p>3 that you get enough expansion of the aluminum</p> <p>4 fork and the rider raises the front fork up,</p> <p>5 then you very probably can get failure because</p> <p>6 the potential is there. There's no redundancy</p> <p>7 built in.</p> <p>8 Q In this case dealing with Mr. Lockwood and his</p> <p>9 bicycle, you don't know what caused the</p> <p>10 failure?</p> <p>11 A Do I know the exact thing that caused it? No,</p> <p>12 I don't.</p> <p>13 Q Could it have been abuse of the bicycle?</p> <p>14 A No, I don't think so because our tests show</p> <p>15 clearly -- I have done a lot of testing on</p> <p>16 front forks, a lot; not just for this case but</p> <p>17 prior to this case. Our testing has clearly</p> <p>18 shown that the rest of the bike will come</p> <p>19 completely apart before a front fork crown and</p> <p>20 steer tube will, if it's properly assembled.</p> <p>21 Q When you say come completely apart ---</p> <p>22 A We're talking about ---</p> <p>23 Q --- you mean separated; not breaking or</p> <p>24 fracturing?</p> <p>25 A No. No, I'm saying that the fork blades will</p>	<p style="text-align: right;">43</p> <p>1 fail; that the -- that the fork itself will</p> <p>2 fail long before -- and the wheel will fail</p> <p>3 long before the front fork and -- excuse me,</p> <p>4 front fork and steer will fail, if it's</p> <p>5 properly designed and manufactured. I've got</p> <p>6 the testator right there that I can show you.</p> <p>7 I have hung up to 1,500 pounds from the front</p> <p>8 fork dropouts and had the wheel fail. I've</p> <p>9 had the fork blades fail, and the fork crown</p> <p>10 and steer tube have remained in place.</p> <p>11 Q Is that because they didn't have a mechanical</p> <p>12 fit like we have in this case? They all have</p> <p>13 built in redundancies like epoxy or welding?</p> <p>14 A Yes.</p> <p>15 Q So every one of the fork crowns that you've</p> <p>16 tested have all had a built in redundancy of</p> <p>17 some kind?</p> <p>18 A Correct, the ones that I've tested in my</p> <p>19 testing.</p> <p>20 Q How many of those have you tested?</p> <p>21 A Probably several hundred; probably 300.</p> <p>22 Q And these are all different bike</p> <p>23 manufacturers?</p> <p>24 A Different manufacturers. The data's in there.</p> <p>25 I'll be ---</p>
<p style="text-align: right;">44</p> <p>1 Q Could you show it to me?</p> <p>2 A Yeah, sure. The testing apparatus is here,</p> <p>3 and -- I'm referring to Chapter 15,</p> <p>4 "Structural Integrity of Bike Frames Subjected</p> <p>5 to Frontal Static Force."</p> <p>6 Q Is there any specific section dealing with the</p> <p>7 fork crowns that the steering tubes went into?</p> <p>8 A Well, it deals with the whole frame. I mean,</p> <p>9 I didn't -- I haven't taken out the fork -- I</p> <p>10 haven't taken out the front fork and steer</p> <p>11 tube and tested it separately because it's a</p> <p>12 meaningless test because I tested it in the</p> <p>13 frame. It tells you nothing if you take it</p> <p>14 separately because that's not what we're</p> <p>15 dealing with here.</p> <p>16 Q Well, wouldn't it tell you how much force</p> <p>17 would be necessary to get the two to separate?</p> <p>18 A Well, it would if that's what you're totally</p> <p>19 interested in studying.</p> <p>20 Q I'm interested in that because I have this</p> <p>21 case.</p> <p>22 A Well, but -- yeah, but you -- you didn't have</p> <p>23 a failure here where you had that happen.</p> <p>24 This was in the bike frame when it happened.</p> <p>25 Q I understand that.</p>	<p style="text-align: right;">45</p> <p>1 A So to take the two of them out -- to take it</p> <p>2 out and to test it separately in the lab to</p> <p>3 get your failure is not a meaningful test at</p> <p>4 all. It means nothing. For one thing, it</p> <p>5 doesn't take into effect the expansion of the</p> <p>6 aluminum front fork as a function of</p> <p>7 temperature at all when you do that, so it</p> <p>8 doesn't mean anything. You -- I'm sure if you</p> <p>9 took this subject front fork out and put it in</p> <p>10 a lab and tried to break it apart, the</p> <p>11 mechanical bond would hold extremely well. It</p> <p>12 would be very hard to get it to separate. But</p> <p>13 that's not what happens in the real world. In</p> <p>14 the real world, what happens is these -- you</p> <p>15 take that out and you have the -- you have the</p> <p>16 aluminum front fork and you have the steer --</p> <p>17 steer tube, and that's subjected to</p> <p>18 temperature variations and use variations.</p> <p>19 And that's when you have to be concerned about</p> <p>20 your failure mode because you've got these two</p> <p>21 different metals and it's in a bike frame.</p> <p>22 It's not separate.</p> <p>23 Q You're an engineer. You're not an</p> <p>24 metallurgist?</p> <p>25 A No, I'm not a metallurgist. I'm a</p>

<p style="text-align: right;">46</p> <p>1 professional engineer.</p> <p>2 Q I take it you don't claim to have any</p> <p>3 expertise, as far as metallurgy is concerned?</p> <p>4 A Well, there is an overlap between the two --</p> <p>5 between the two fields in this particular part</p> <p>6 of engineering. I don't pretend to be a</p> <p>7 metallurgist, but I've used a lot of data from</p> <p>8 metallurgists and have worked with a lot of</p> <p>9 them through the years. But I'm not a</p> <p>10 metallurgist and I'm not holding myself out as</p> <p>11 a metallurgist.</p> <p>12 Q So if I understand what you're saying,</p> <p>13 regardless of how strong the fit is in the</p> <p>14 fork crown assembly, it's your opinion,</p> <p>15 regardless of what the strength is of that</p> <p>16 bond, that it's still at a high degree of risk</p> <p>17 to become separated, due to temperature</p> <p>18 changes and the effect of the temperature</p> <p>19 changes on the steel and the aluminum because</p> <p>20 you have dissimilar ---</p> <p>21 A You summarized that very well. Yes.</p> <p>22 Q Is that your opinion?</p> <p>23 A Yes.</p> <p>24 Q Is there anything else that could cause</p> <p>25 separation, other than what we've just gone</p>	<p style="text-align: right;">47</p> <p>1 through, absent, as one of the experts said</p> <p>2 the other day, a train running over the thing?</p> <p>3 A Oh, yeah, any of those collateral issues.</p> <p>4 That's what you guys do when you get to trial.</p> <p>5 Well, I think you have an idea of what my</p> <p>6 opinion is pretty good so I'm not going to</p> <p>7 keep beating on that. There are some other</p> <p>8 issues here that I'm going to -- I'm going to</p> <p>9 mention for the sake of completeness. And I'm</p> <p>10 not -- I'm not saying that I have any -- any</p> <p>11 data to suggest that this did or did not --</p> <p>12 these -- this list did or did not occur, but I</p> <p>13 think it needs to be read into the record, to</p> <p>14 answer your question. No. 1 is that it very</p> <p>15 well may have been that the steer tube and the</p> <p>16 front fork may have been mis-sized during the</p> <p>17 manufacturing process. I can't rule that out.</p> <p>18 Q That's a possibility but you don't have any</p> <p>19 facts one way or the other?</p> <p>20 A Right. In all of these I'm listing I don't</p> <p>21 have -- they are possibilities and I have no</p> <p>22 facts to back them up; okay? But I think for</p> <p>23 the sake of completeness they should be</p> <p>24 listed. No. 2, there may very well be in the</p> <p>25 procedure and epoxy type of bonding process</p>
<p style="text-align: right;">48</p> <p>1 and it was just missed on this front fork.</p> <p>2 They may very well do that, they being</p> <p>3 Suntour, at their plant and they just didn't</p> <p>4 do it on this one. They missed it. You may</p> <p>5 have a bad lot out there because of that.</p> <p>6 Although I don't recommend the bonding process</p> <p>7 such as we're dealing here, it may very well</p> <p>8 have been that during the mechanical bonding</p> <p>9 process in the lab -- excuse me, at the</p> <p>10 manufacturing site, that there was a</p> <p>11 misalignment here when the two were joined.</p> <p>12 So as a result, since steel is stronger than</p> <p>13 aluminum, that if there was a misalignment</p> <p>14 when they were pressed together, you would get</p> <p>15 larger striations in there than you would get</p> <p>16 normally, "in there" being on the front fork.</p> <p>17 You now would cause the bonding not to be very</p> <p>18 well done. Again, it's a possibility. I have</p> <p>19 nothing to back that up. I'm just listing</p> <p>20 things that could have happened.</p> <p>21 Q With regard to your CV, I want to ask you a</p> <p>22 question. You're on an ethics committee?</p> <p>23 A I'm not on it anymore. I was.</p> <p>24 Q You talk about miscellaneous memberships,</p> <p>25 2002, you've got on here fellow of the</p>	<p style="text-align: right;">49</p> <p>1 National Academy of Forensic Engineers, and</p> <p>2 the goal of the National Academy of Forensic</p> <p>3 Engineers is to promote the ethical practice</p> <p>4 of forensic engineering. When you say</p> <p>5 "ethical practice," what do you mean?</p> <p>6 A Well, the -- the Academy was formed in the</p> <p>7 early '80's through the National Society of</p> <p>8 Professional Engineers to ensure that</p> <p>9 testimony that was given in court or work that</p> <p>10 was done after-the-fact adhered to the</p> <p>11 principles and practices of engineering. There</p> <p>12 are approximately 500 members in that academy</p> <p>13 and we think of ourselves as kind of the</p> <p>14 pathologists of the engineering community. We</p> <p>15 come in after the fact and try and reconstruct</p> <p>16 things and determine what causes things to</p> <p>17 fail, and then give that information to the</p> <p>18 design community where possible. And your</p> <p>19 question was ethical -- the ethical end of it.</p> <p>20 The paramount thing really in the</p> <p>21 investigation should be what can be done to</p> <p>22 best protect the safety and health of the</p> <p>23 general public, both in the investigation</p> <p>24 we're conducting and in what the results may</p> <p>25 show and do later one. And that covers the</p>



<p style="text-align: center;">* * *</p> <p style="text-align: right;">62</p> <p>1 Q This is not a redundancy with the striations</p> <p>2 in there?</p> <p>3 A No.</p> <p>4 Q As far as the fork crown is concerned being</p> <p>5 made out of aluminum ---</p> <p>6 A Right.</p> <p>7 Q --- did they have striations before or were</p> <p>8 they made because of the steel?</p> <p>9 A They were made because of the steel.</p> <p>10 Q Going into the fork crown?</p> <p>11 A Correct.</p> <p>12 Q Are they interlocking in nature?</p> <p>13 A Yes.</p> <p>14 Q As far as the length of the steel tube, was</p> <p>15 that within industry guidelines, standards?</p> <p>16 A I didn't measure it, but it appeared to be,</p> <p>17 from visual inspection. I didn't consider it</p> <p>18 to be an issue.</p> <p>19 Q And I asked this before, I think. You don't</p> <p>20 know what the amount of force would be to</p> <p>21 cause the bond to become undone between the</p> <p>22 steering tube and ---</p> <p>23 A No.</p> <p>24 Q And you don't know what the bond strength</p> <p>25 would be to be sufficient under industry</p>	<p style="text-align: right;">63</p> <p>1 guidelines for that to be together, the bond</p> <p>2 strength, what it should have been?</p> <p>3 A Well, what it should have been ---</p> <p>4 Q Other than the redundancy that you've</p> <p>5 mentioned?</p> <p>6 A Well, yeah, the bond needs to be different.</p> <p>7 Q So you're saying that that's ---</p> <p>8 A I'm not trying to confuse this issue but let's</p> <p>9 make sure we understand ---</p> <p>10 Q You're saying that that's irrelevant, what the</p> <p>11 bond strength was, because you didn't have the</p> <p>12 redundancy built in?</p> <p>13 A I'm saying that, but your question wasn't</p> <p>14 that. Your question was what is the bond</p> <p>15 strength, and then 'You don't know what it</p> <p>16 was?' I think, is what you asked me.</p> <p>17 Q Right. You don't know what it was?</p> <p>18 A Well, I know what it should be. Does that</p> <p>19 help answer the question?</p> <p>20 Q Okay.</p> <p>21 A Okay. It should be capable of withstanding at</p> <p>22 least 1,000 pounds of static force.</p> <p>23 Q Where do you get that from?</p> <p>24 A Measurements -- or, excuse me, testing I've</p> <p>25 done on other forks where I've applied at</p>
<p style="text-align: right;">64</p> <p>1 least that amount, or more, to them statically</p> <p>2 now -- not dynamically but statically -- and</p> <p>3 did not get failure.</p> <p>4 Q Again, you're not aware of any industry</p> <p>5 standards as to what the strength should have</p> <p>6 been?</p> <p>7 A Correct.</p> <p>8 BY MR. LOPATA:</p> <p>9 I think I'm finished.</p> <p>10 BY MR. SMITH:</p> <p>11 I just have one question.</p> <p>12 CROSS-EXAMINATION BY MR. SMITH:</p> <p>13 Q Is it standard in the industry for a fork to</p> <p>14 be designed such that the steel tube does not</p> <p>15 separate from the fork crown through normal</p> <p>16 and expected use?</p> <p>17 A Yes, the -- the standards are that no</p> <p>18 separation occur.</p> <p>19 BY MR. LOPATA:</p> <p>20 Thank you.</p> <p>21 (PROCEEDINGS IN THE ABOVE-ENTITLED MATTER WERE</p> <p>22 ADJOURNED AT APPROXIMATELY 2:30 P.M.)</p> <p>23</p> <p>24</p> <p>25</p>	<p style="text-align: right;">65</p> <p style="text-align: center;">CERTIFICATE</p> <p style="text-align: center;">STATE OF NORTH CAROLINA )</p> <p style="text-align: center;">) )</p> <p style="text-align: center;">COUNTY OF BUNCOMBE )</p> <p>I, REBECCA GELDRES, Court Reporter and Notary Public, do hereby certify that the foregoing 64 pages are an accurate transcript of the deposition of JAMES M. GREEN, taken by me and transcribed under my supervision.</p> <p>I further certify that the deponent was first duly sworn by me to tell the truth.</p> <p>I further certify that I am not financially interested in the outcome of this action, a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of such attorney or counsel.</p> <p>This is the 15th day of April 2003.</p> <p style="text-align: center;">REBECCA GELDRES, CVR Notary Public for North Carolina</p> <p style="text-align: center;">(Seal)</p> <p style="text-align: center;">Asheville Reporting Service 66 N. Market Street, Asheville, North Carolina 28801 828-254-9230 800-357-5007</p>